# **Evaluation system of passenger transportation**

Quality Assessment;

quality features are essential for planning and operating the passenger transportation

for the operation of the bonus-malus system according to the contracts

### Quality: the sum of the features of the service

subjective features (it is defined by several features of the service) – it can be transformed to objective according to widely accepted norms

"hard" quality features – measurable in objective way (e.g.: punctuality, vehicle capacity utilization)

"soft" quality features are more subjective – passenger interviews, satisfaction surveys (e.g.: staff attitude, sense of security, cleanliness of the stops)

### **Basic questions:**

- Relationship of quality features costs
- Relationship of demand quality features

demand – fees (costs) relationship

it can be interpreted to any kind of transportation mode – public transport is the most elaborated

## quality loop



Aim: reduction of quality gaps between the quality terms

### **Expectations:**

- user (passenger)
- society (government, municipalities)
- service provider (operator, company)

## Consistent Quality Approach – EN 13816:2002 structure



- aim: uniform interpretation and definition of the quality features; the uniform quality approach
- system of criteria and their hierarchy, measurement methods
- for the EU countries
- responsibility of measures

## **Quality aspects**

aspects can be further divided/disaggregated hierarchically according to their content

1. availability	Extent of the service offered in terms of geography, time, frequency and transport mode
2. accessibility	Access to the public transport system with special regards to interface with other transport modes and to sales opportunities
<u>3. information</u>	Systematic provision of knowledge about a public transport system to assist the planning and execution of journeys (static and dynamic information)
<u>4. time</u>	Aspects of time elements being relevant to the planning and execution of journeys
5. customer care	The care about the passengers during the travel
6. comfort	Ensuring the proper service during the travel, accessibility (barrier-free)
7. security	Ensuring the traffic and passenger safety
8. environmental impacts	Effect on the environment resulting from the operation of the public transport service

### **Demonstration of quality aspects**

- information (e.g.: about departure)

- static information (e.g.: timetable shield)
- dynamic information (e.g.: elapsed time since the last departure)
- dynamic information (e.g.: next departure)

#### - time

Perceived travel time and its elements

(waiting time, on-board time, changing time, from and to walking time)

temporal utility: what is the deviation from the planned departure

(number of changes, number of changes between service operators)

**Quality tree** – aggregated quality aspect (comparison the features to the higher value, weight factors) e.g.: qualification and comparison of the routes

the quality concept contains the price indirectly, but the degree of the expectation and satisfaction depends on the **price of the service**  Quality criteria of the public transport system

1. availability	1.1 Spatial (network, stop density, stop location)
	1.2 Temporal (operating time, timetable, frequency)
2. accessibility	2.1 External interface (to other transportation modes)
	2.2 Internal interface (direct routes, number of changes)
	2.3 Ticketing (use of ticket machine)
<u>3. information</u>	3.1 General information (transparency of the network, timetable and tariff system)
	3.2 Traveller Information System
	3.3 Traveller Information Services (in planned and non-planned situations)
<u>4. time</u>	4.1 Travel time (speed)
	4.2 Punctuality
	4.3 Reliability (cancellations, reliability of the connections)

5. customer care	5.1 Commitment
	5.2 Customer (public) relationship
	5.3 Staff (passenger service)
	5.4 Physical (assistance)
	5.5 Ticketing options (fare discounts, passes)
6. comfort	6.1 Environmental conditions (conditions of the waiting at stops)
	6.2 Usability of passenger facilities
	6.3 Ergonomics
	6.4 Travel comfort (number of seats, driving behaviour)
7. security	7.1 Crime prevention (passenger security)
	7.2 Accident prevention (traffic safety)
8. environmental impacts	8.1 Pollution
	8.2 Demand for natural resources
	8.3 Infrastructure

# Time and space management and the effects on quality criteria

- Both the quality features and quality requirements vary spatially and temporally (the importance and the weight of the different aspects too)
- No average traveler, the quality depends on the individuals
- Quantitative related quality
- Public transport is a mass service, not private
- <u>Availability</u> is the outstanding advantage of the private transport compared to the public transport

The role of public transport (changes spatially and temporally):

- determinative,
- competitive,
- attendance.

The quality aspects vary according to the role

## Aims, actions/measures

Quality analysis shortages actions (at social, service provider level)



Enhance the user satisfaction

increase the proportion of public transport

aims	actions/meausres
Enhancing the user satisfaction	Better cooperation (integrated transportation)
	Differentiation of operational structure (demand responsive transport, DRT)
	Differentiation of routes and travel times
	Use of computerized procedures
	Coordination of public transport and private transport
	More rational capacity supply
Enhancing the transport quality	Simplification of the tariff system
	Easier/more simple ticketing system
	Better/improved customer services
	Better/improved passenger information
	Intensive market research
	More effective sales procedures
Environmental effects	Modernized vehicles
	Better/more efficient traffic management

How a quality aspect is affected by an action? And what is the consequence as growth of expenditure or revenue (number of passengers)?

## Research of the quality aspects according to the data from the information systems

4. Exploration of the expected quality

(reliable forecast of the mobility needs)

#### 3. Affecting of the perceived

quality

(with personalized information)

#### 2. Affecting the perceived quality

(reliable forecast of the traffic situation)

#### 1. Analyses of the gap between the planned and provided quality



Legend:

- → Flow of information
- ➡ Flow of passenger and vehicle

Data collection from different sources – (data mining)